



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/598,633

09/07/2006

Henri Bouma

NL 040230

8360

24737 7590 10/01/2009  
PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
P.O. BOX 3001  
BRIARCLIFF MANOR, NY 10510

EXAMINER

CHANG, JON CARLTON

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

10/01/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/598,633	<b>Applicant(s)</b> BOUMA, HENRI	
	<b>Examiner</b> JON CHANG	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/4/09 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Drawings***

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.

Art Unit: 2624

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

3. The disclosure is objected to because of the following informalities:

a) The specification refers to claims to describe the invention (e.g., page 3 at line 2, page 4 at lines 3 and 13, page 5 at line 1). The specification should not refer to the claims to describe the invention.

b) On page 10, line 3, "the operator a correction factor  $\alpha$  is determined" is unclear. There appears to be a word or words missing.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2624

6. In claims 1 and 9, in the respective preambles, with regard to the phrase, “in particular a medical image”, it is not clear as to whether this is intended to be a required feature in the claim, or the whether the claim is intended to be limited to only a medical image.

7. Claims 2-8 depend from claim 8, and are therefore indefinite by reason of their dependence.

### ***Claim Rejections - 35 USC § 101***

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 9 and 10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

10. Claim 9 is rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. The Federal Circuit<sup>1</sup>, relying upon Supreme Court precedent<sup>2</sup>, has indicated that a statutory “process” under 35 U.S.C. 101 must (1) be tied to a particular machine or apparatus, or (2) transform a particular article to a different state or thing. This is referred to as the “machine or transformation test”, whereby the recitation of a particular machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility (See *Benson*,

---

<sup>1</sup> *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

<sup>2</sup> *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

Art Unit: 2624

409 U.S. at 71-72), and the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity (See *Flook*, 437 U.S. at 590"). While the instant claim recites a series of steps or acts to be performed, the claims neither transform an article nor are positively tied to a particular machine that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. In order for a process to be "tied" to another statutory category, the structure of another statutory category should be positively recited in a step or steps significant to the basic inventive concept, and NOT just in association with statements of intended use or purpose, insignificant pre or post solution activity, or implicitly. The claim is not tied to a particular machine because the structure of another statutory category is not positively recited in a step significant to the basic inventive concept, and the steps of the claim could reasonably be construed as being performed manually. The claim also does not satisfy either of the two aspects of the transformation test:

1) It does not transform a particular article to a different state or thing; no physical transformation is claimed.

2) It does not satisfactorily transform data because:

a) the data (i.e., the image) is not required to represent a real world/physical object;

b) there is no external, non-data representation of the physical object represented by the modified data.

11. In order to obviate this rejection, the Examiner suggests either one of the following options:

1) include language in the claim which requires meaningful and significant steps (such as the calculating and determining steps) be performed by a particular machine (i.e., not a generic “machine” or “device”); or,

2) require that the image represent a real world/physical object, and include an additional step which requires depiction of a non-data representation (this could be a visual depiction) of the resulting data (e.g., depicting the edge).

12. Any language added to the claims must find support in the original disclosure, in order to avoid a rejection under 35 U.S.C. 112, 1st paragraph (new matter).

13. Claim 10 is drawn to a “computer program product”. The specification does not define the term “computer program product”. However, in view of the third paragraph of page 13, and the structure of the claim, it is reasonable to assume that the “computer program product” is a computer program. Computer programs are not physical “things.” They are neither computer components nor statutory processes, as they are not “acts” being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program’s functionality to be realized. Therefore, the claim is not directed to statutory subject matter.

#### ***Allowable Subject Matter***

14. Claims 1-8 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action. The prior

Art Unit: 2624

art of record does not disclose the steps of determining a correction factor  $\alpha$  that corrects for dislocation of an edge caused by curvature of an object and/or blurring of the data; the correction factor  $\alpha$  depending on the isophote curvature  $K$ ; and determining a zero crossing of an operator that depends on the calculated derivative and the isophote curvature.

***Subject Matter Not Found in the Prior Art***

15. The subject matter of claims 9 and 10 were not found in the prior art. Allowability is not indicated in view of the rejection under 35 U.S.C. 101.

***Citation of Pertinent Prior Art***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Verbeek et al., "On the Location Error of Curved Edges in Low-Pass Filtered 2-D and 3-D Images", discusses the location error of curved edges after low-pass filtering.

Maintz et al., "Evaluation of Ridge Seeking Operators for Multimodality Medical Image Matching", discusses among other things, employing isophote curvature in detecting ridges.

Bouma, Henri, "Edge Location and Curvature", describes first and second-order directional derivatives, isophote curvature, edge-based segmentation using zero-crossing of the second-order derivative, and dislocation of edge detectors. The



Art Unit: 2624

reference does not disclose the steps of determining a correction factor, and determining a zero crossing of an operator, as specifically recited in the claims.

U.S. Patent Application Publication 20040161141 to Dewaele discloses use of isophote curvature in determining the orientation of an image.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JON CHANG whose telephone number is (571)272-7417. The examiner can normally be reached on M-F 8:00 a.m.-6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571)272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jon Chang

Application/Control Number: 10/598,633  
Art Unit: 2624

Page 9

Primary Examiner  
Art Unit 2624

/Jon Chang /  
Primary Examiner, Art Unit 2624